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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,633	01/22/2002	Niall R. Lynam	DON01 P-962	5792
28101	7590	09/08/2004	EXAMINER	
VAN DYKE, GARDNER, LINN AND BURKHART, LLP 2851 CHARLEVOIX DRIVE, S.E. P.O. BOX 888695 GRAND RAPIDS, MI 49588-8695			NEGRON, ISMAEL	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/054,633	LYNAM ET AL.	
	Examiner	Art Unit	
	Ismael Negrón	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-250 is/are pending in the application.
- 4a) Of the above claim(s) 1-129 and 185-250 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 130-184 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/22/03, 1/23/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 130-184 in the reply filed on January 16, 2004 is acknowledged.

### ***Title***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Vehicle Interior Single LED Lighting System.**

### ***Abstract***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it uses phrases which can be implied, and exceeds the 150 words maximum. Correction is required. See MPEP § 608.01(b).

### ***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "**14a**" has been used to designate both "*incandescent light source socket*" (page 12, line 7), "*arms*" (page 12, line 17) and "*contacts*" (page 12, line 23). Also note the following:

- reference character "**14b**", used to designate "*incandescent light source socket*" (page 12, line 7), "*arms*" (page 12, line 17) and "*contacts*" (page 12, line 23);
- reference character "**14c**", used to designate "*incandescent light source socket*" (page 12, line 7) and "*arms*" (page 12, line 17);

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- reference character "**14d**", used to designate "*incandescent light source socket*" (page 12, line 7) and "*arms*" (page 12, line 17);
- reference character "**30**", used to designate "*driver-side switch*" (page 12, line 19) and "*buttons*" (page 14, line 5);
- reference character "**30**", used to designate "*driver-side switch*" (page 12, line 19) and "*buttons*" (page 14, line 5);
- reference character "**16**", used to designate "*light source unit/module*" (page 12, line 4) and "*light module*" (page 14, line 19); and
- reference character "**130**", used to designate "*LED*" (page 44, line 27) and "*base*" (page 44, line 33).

The applicant is advised that the reference characters must be properly applied, with no single reference character being used for two different parts or for a given part and a modification of such part. See MPEP §608.01(g).

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not

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accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant is further advised that this action only exemplifies the objections to the drawings since the lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting all the occurrences of the cited, or any other errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 130-138, 140-143, 146-148, 152-158, 163-179, 183 and 184 are rejected under 35 U.S.C. 102(b) as anticipated by BOS et al. (U.S. Pat. 5,671,996) or, in the alternative, under 35 U.S.C. 103(a) as obvious over BOS et al. (U.S. Pat. 5,671,996) in view of COLLINS et al. (U.S. Pat. 3,676,668).

BOS et al. discloses a vehicle illumination system having :

- **an accessory module assembly**, Figure 1, reference number 10;

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- **the module assembly being adapted for attachment to an interior portion of a vehicle**, column 1, lines 57-66;
- **the module assembly being configured to illuminate an area inside the vehicle**, column 4, lines 55-60;
- **the module assembly being attached to an interior portion of the vehicle**, column 1, lines 57-66;
- **the module assembly including a single non-incandescent light source**, Figure 4, reference number 90;
- **the single light source being a single high-intensity power light emitting diode (HiLED)**, column 6, lines 65 and 66;
- **the HiLED illuminating the area with an efficiency of at least 1 lumen/watt**, column 7, lines 1-8;
- **the HiLED being operated at a current of at least 100 mA**, column 7, lines 40-43;
- **a power resistor**, Figure 4, reference number 92;
- **the illuminated area being at a distance greater than 20 inches from the module assembly**, as seen in Figure 2;
- **the illuminated area being at a distance greater than 40 inches from the module assembly**, as seen Figure 2;

- **the illuminated area being at a distance of about 20 to 40 inches from the module assembly, Figure 4, reference number 2;**
- **a voltage conversion element, column 8, lines 14-26;**
- **the voltage conversion element converting a battery/ignition voltage of the vehicle to the operational voltage of the module assembly, column 8, lines 14-26;**
- **the voltage conversion element having a step-down ration of at least about 2 to 1, column 8, lines 14-26;**
- **the voltage conversion element having a step-down ration of at least about 4 to 1, column 8, lines 14-26;**
- **the voltage conversion element having a step-down ration of at least about 6 to 1, column 8, lines 14-26;**
- **the module assembly including the voltage conversion element, as seen in Figure 4);**
- **the HiLED emitting at least 1 lumen, column 7, lines 40-43;**
- **the HiLED emitting at least 5 lumen, column 7, lines 40-43;**
- **the HiLED operating at a voltage of at least about 1 volt, column 7, lines 16-18;**

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- **the HiLED operating at a voltage of at least about 2 volts**, column 7, lines 16-18;
- **the HiLED operating at a voltage of at least about 2 to 5 volts**, column 7, lines 16-18;
- **the HiLED operating at a voltage of less than about 50% of the battery/ignition voltage of the vehicle**, column 8, lines 14-22;
- **the HiLED operating at a voltage of less than about 35% of the battery/ignition voltage of the vehicle**, column 8, lines 14-22;
- **the HiLED operating at a voltage of less than about 20% of the battery/ignition voltage of the vehicle**, column 8, lines 14-22;
- **the battery/ignition voltage being about 12 volts**, column 8, lines 20-22;
- **the HiLED assembly being removable**, as seen in Figure 4;
- **the accessory module including a mirror assembly**, as seen in Figure 2;
- **the module assembly including a lens**, Figure 6, reference number 100;

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- **the lens being one selected from the group consisting of a diffractive and refractive optical element**, column 8, lines 38-40;
- **the lens being one selected from the group consisting of a Fresnel-optic lens, a binary optic lens, a diffusive-optic lens, a holographic-optic lens and a sinusoidal-optic lens**, column 8, lines 38-40;
- **the interior portion including a header assembly**, as seen in Figures 12 and 13; and
- **the accessory module including an interior rearview mirror assembly**, as seen in Figure 2.

BOS et al. disclose all the limitations of the claims, except :

- a heat dissipation element;
- the heat dissipation element being adapted to dissipate heat from the HiLED;
- the heat dissipation element including a reflective surface for reflecting light from the HiLED ;
- the reflective surface reflecting light toward the illuminated area;
- the heat dissipation element being a heat-sink;
- the heat sink being a metal heat sink;

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- the metal heat sink being made from a metal selected from the group consisting of a copper, copper alloy, aluminum and brass;
- the accessory module including a reflector;
- the reflector including a heat sink;
- the accessory module including a heat sink;
- the HiLED being thermally coupled to the heat sink; and
- the reflector being configured to shape light emitted from the HiLED.

COLLINS et al. discloses light emitting diode having:

- **a heat dissipation element**, Figure 4, reference number 12;
- **the heat dissipation element including a reflective surface for reflecting light from the HiLED**, Figure 4, reference number 14;
- **the reflective surface reflecting light toward an area of illumination**, column 2, lines 44-47;
- **the heat dissipation element being a heat-sink**, as seen in Figure 3;
- **the heat sink having fins**, Figure 4, reference number 17 and 18;
- **the heat sink being a metal heat sink**, column 2, line 8;

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- **a reflector**, Figure 4, reference number 14;
- **the reflector including a heat sink**, as seen in Figure 3;
- **the HiLED being thermally coupled to the heat sink**,  
column 2, lines 14-16; and
- **the reflector being configured to shape light emitted  
from the HiLED**, column 2, lines 44-47.

One of ordinary skill in the art at the time the invention was made would have recognized that the HiLED of BOS et al. included the claimed metal heat-sink/reflector, specifically an aluminum heat-sink/reflector as such structures are a standard feature of most LED. However, even if one of failed to recognized such fact, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the integrated metal heat-sink/reflector of COLLINS et al. in the HiLED of BOS et al. to increase the efficiency and light output of such HiLED, as per the teachings of COLLINS et al. (see column 2, lines 64-67).

7. Claims 139, 144, 145, 149-151, 160-162 and 180-182 are rejected under 35 U.S.C. 103(a) as being unpatentable over BOS et al. (U.S. Pat. 5,671,996) in view of COLLINS et al. (U.S. Pat. 3,676,668).

The teachings of BOS et al. and COLLINS et al. disclose individually, or suggest in combination, all the feature of the claimed invention, except:

- **the HiLED emitting at least about 10 lumens;**

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- a heat sink having an area of at least about 1 square inch;
- the HiLED operating at a current greater than about 250 mA;
- the HiLED operating at a current greater than about 350 mA;
- the resistor being rated to dissipated at least about 2.5 watts;
- the resistor being rated to dissipated at least about 3.0 watts;
- the resistor being rated to dissipated at least about 3.5 watts;
- the HiLED dissipating at least about 1 watt when operated;
- the HiLED dissipating at least about 1.5 watts when operated; and
- the HiLED dissipating at least about 2 watts when operated.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use HiLED, heat sink and resistors having the specific properties claimed by the instant invention, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233. In this case BOS et al. discloses using a HiLED for illuminating the interior of a vehicle, selecting a specific HiLED, heat sink and its appropriate power resistor have been an obvious matter of choice depending on the particular requirements of a specific application.

8. Claim 159 is rejected under 35 U.S.C. 103(a) as being unpatentable over BOS et al. (U.S. Pat. 5,671,996) in view of COLLINS et al. (U.S. Pat. 3,676,668).

The teachings of BOS et al. and COLLINS et al. disclose individually, or suggest in combination, all the feature of the claimed invention, except the vehicle's battery/ignition voltage being about 42 volts.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to design the voltage conversion element to work with a vehicle's battery/ignition voltage of 42 volts, since such 42 volts voltage is the new proposed standard for vehicles electric systems.

### ***Relevant Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Serizawa et al.** (U.S. Pat. 4,733,335), **Nishihashi et al.** (U.S. Pat. 5,038,225) and **Bos et al.** (U.S. Pat. 6,412,973) disclose LED illumination devices adapted to be mounted to the interior of vehicles, such LED illumination devices having means to dissipate heat generated by the LED.

**Masami et al.** (U.S. Pat. 4,729,076), **Jenkins** (U.S. Pat. 5,006,971) and **Roney et al.** (U.S. Pat. Nos. 5,528,474 and 5,632,551) disclose LED illumination devices having means to dissipate heat generated by the LED.

**Kosman et al.** (U.S. Pat. 3,821,590), **Carley** (U.S. Pat. 3,860,847), **Savage, Jr.** (U.S. Pat. 4,035,681), **Thillays** (U.S. Pat. 4,228,490) and **Angerstein et al.** (U.S. Pat. 4,780,752) disclose LED having metallic reflectors, mostly aluminum, which also serve

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to dissipate heat produced by the LED chip by conducting such heat towards the LED electric connection leads.

**Edgar** (AutoSpeed, Issue No. 50), **Jewett** and **Kobe** disclose the proposed new 42 volts standard for automotive electrical systems.

**Stewart** (Hewlett-Packard Journal, Volume 50, Number 1) discusses the lighting properties of Hewlett-Packard HiLED for automotive applications.

### ***Conclusion***

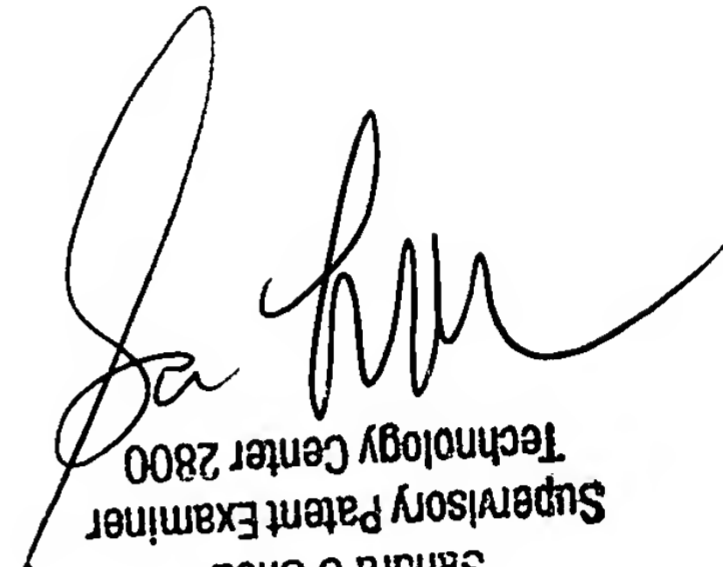
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negrón whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (571) 272-2378. The facsimile machine number for the Art Group is (703) 872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you

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have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800

  
Inr

September 3, 2004